REMARKS

By this Amendment, claims 1, 3-5, 9, 11-13, 17, 19, 22-23 and 25 have been amended and new claims 26-31 have been added. Claims 3-5, 11-13, 19, 22-23 and 25 have been amended to clarify, and new claims 26-31 have been added to further recite, the claimed subject matter without narrowing the scope of any of the claims. Applicants have amended the currently pending claims in order to expedite prosecution and do not, by this amendment, intend to abandon subject matter of the claims as originally filed or later presented. No new matter has been added. New claims 26-31 substantially correspond to claims 2-6 and 8. Claims 1-31 are pending in this patent application. Reconsideration of the rejections in view of the remarks below is requested.

Applicants gratefully acknowledge that the Examiner has allowed claims 21 to 24 and finds claims 6 and 14 allowable if rewritten in independent form.

In response to Examiner's objections, Applicants have amended the title of the application. Further, Applicants have amended the specification to correct the informalities in paragraphs 46 and 56 identified by the Examiner. Finally, Applicants have amended claims 1 and 25 to correct the informalities identified by the Examiner. By these amendments, Applicants do not intend to nor do not actually narrow or limit the scope of the claimed invention.

The Office Action rejected claims 5 and 13 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants have amended the respective independent claims 1 and 9 to correct for the error and inconsistency in these claims relative to their dependent claims 5 and 13. The rejection of claims 5 and 13 under 35 U.S.C. §112, second paragraph, is now moot.

The Office Action rejected claims 1-5, 7-13, 15-20 and 25 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. 2003/0013213 to Takano. Applicants respectfully traverse the rejection, without prejudice.

Takano discloses an exposure system that includes a wafer processing apparatus for performing a preparation-for-exposure process on a wafer before an exposure process is performed, an exposure apparatus for performing the exposure process on the wafer subjected to the preparation-for-exposure process performed by the wafer processing apparatus, wherein the exposure apparatus also performs a calibration process to correct an error caused by a time-varying environmental parameter and/or caused by the exposure apparatus itself,

and a host computer connected to the wafer processing apparatus and the exposure apparatus via communication means. Depending on the time needed for the wafer processing apparatus to perform the preparation-for-exposure process, the host computer outputs a calibration execution command for performing the calibration process to the exposure apparatus. Thereby, the total time from the start of processing a lot to the end thereof is minimized and thus, the total throughput is improved. (See, Takano, abstract).

In more detail, Takano discloses that the time is calculated which is needed to perform the preparation-for-exposure process by the wafer processing apparatus and to feed a first wafer to the exposure apparatus after starting processing for a lot (the time is equal to the sum of processing times needed for resist coating, prebaking, etc.), and the calculated time is compared with the time needed for the preparation-for-exposure process (including the maintenance time) performed by the exposure apparatus to determine whether the exposure apparatus has a waiting time. If the exposure apparatus is determined to have a waiting time, the maintenance process (calibration process for correction of time-varying errors) is performed within the waiting time, thereby making it possible for the exposure apparatus to efficiently operate during the time in which the wafer processing apparatus transfers a wafer or during the time in which the preparation-for-exposure process is performed. (See, Takano, page 2, paragraph [25]).

Further, Takano discloses that the host computer calculates the time needed to supply a first wafer of a lot to the exposure apparatus after starting the apparatuses or the lot switching time needed to supply a first wafer of a next lot to each exposure apparatus after completing a post-process on a last exposed wafer of a previous lot (i.e., the time equal to the sum of the time needed to coat a resist on a wafer, the time needed for development, and so on), and the host computer manages the waiting time of the exposure apparatus so that the exposure apparatus can perform the maintenance process using the waiting time in which the wafer processing apparatus is switching lots, thereby achieving an improvement in the total lot-processing throughput. (See, Takano, page 5, paragraph [65]).

However, Applicants' respectfully submit that Takano fails to at least disclose, teach or suggest a method which comprises determining a gap in the flow of substrates in a part of the substrate processing system, other than a gap in the flow of substrates caused at introduction of substrates into the substrate processing system, as recited in independent claim 1. Further, Applicants' respectfully submit that Takano fails to at least disclose, teach or suggest a computer program product which comprises software code configured to determine a gap in the flow of substrates in a part of the substrate processing system, other

than a gap in the flow of substrates caused at introduction of substrates into the substrate processing system, as recited in independent claim 9. Further, Applicants' respectfully submit that Takano fails to at least disclose, teach or suggest a lithographic apparatus which, among other things, comprises a processing unit configured to determine a gap in the flow of substrates in a part of a substrate processing system, other than a gap in the flow of substrates caused at introduction of substrates into the substrate processing system, as recited in independent claim 17. Further, Applicants' respectfully submit that Takano fails to at least disclose, teach or suggest a method which comprises determining a gap in the flow of substrates in a part of one of the track and the lithographic apparatus, other than a gap in the flow of substrates caused at introduction of substrates into the track and lithographic apparatus, as recited in independent claim 25.

As noted above, Takano discloses a mechanism to schedule certain exposure apparatus maintenance items. To do this, Takano calculates the time needed for a first wafer of a lot to pass through the wafer processing apparatus to the exposure apparatus and the time needed for the exposure apparatus to prepare for the exposure of that first wafer. If the time needed for that wafer to reach the exposure apparatus is greater than the exposure apparatus preparation time, maintenance items can be scheduled in the exposure apparatus to occur during that extra time. Thus, Takano simply discloses having the exposure apparatus perform more tasks in parallel with the time for the first wafer to pass through the wafer processing apparatus to the exposure apparatus. Thus, Takano only addresses taking advantage of a leading space in the substrates due to the introduction of substrates into the exposure system, i.e., the combination of the exposure apparatus and the wafer processing apparatus (or, in other words, the substrate processing apparatus). Thus, Takano does not disclose determining a gap in the flow of substrates in a part of the substrate processing system, other than a gap in the flow of substrates caused at the introduction of substrates into the substrate processing system.

Further, Takano discloses calculating the lot switching time needed to supply a first wafer of a next lot to each exposure apparatus after completing a post-process on a last exposed wafer of a previous lot and then scheduling a maintenance process in the exposure apparatus during the switching time. Thus, Takano only addresses taking advantage of a space between two different lots of substrates upon the introduction of those substrates into the exposure system, i.e., the combination of the exposure apparatus and the wafer processing apparatus (or, in other words, the substrate processing apparatus). Thus, Takano does not disclose determining a gap in the flow of substrates in a part of the substrate processing

system, other than a gap in the flow of substrates caused at the introduction of substrates into the substrate processing system.

In sum, Takano fails to disclose, teach or suggest determining of a gap in the flow of substrates occurring within the substrate processing system and not caused at the introduction of substrates into the substrate processing system. So, for example, Takano does not disclose, teach or suggest determining a gap in the flow of substrates in the substrate processing system caused by a maintenance action, downtime, bottleneck, system timing variations, etc. and then scheduling a maintenance action to be performed to take advantage of that gap.

Therefore, for at least the above reasons, Takano fails to disclose, teach or suggest all the features recited by independent claims 1, 9, 17 and 25. Claims 2-8 depend from claim 1, claims 10-16 depend from claim 9, claims 18-20 depend from claim 17, and claims 26-31 depend from claim 25 and are, therefore, patentable for at least the same reasons provided above related to independent claims 1, 9, 17 and 25 and for the additional features recited therein. As a result, Applicants respectfully submit that the rejection under 35 U.S.C. §102(e) should be withdrawn and the claims allowed.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance. If questions relating to patentability remain, the Examiner is invited to contact the undersigned to discuss them.

Should any fees be due, please charge them to our deposit account no. 03-3975, under our order no. 081468/0304886. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced deposit account.

Respectfully submitted,
PILLSBURY WINTHROP LLP

Jean-Paul Hoffman
Reg. No. 42,663
Tel. No. 703-905-2094
Fax No. 703-905-2500

JSB/JGH
P. O. Box 10500
McLean, VA 22102
(703) 905-2000